



MV MOBILITY **RAIL BROCHURE**





About Us

MV Mobility offers End to End solutions in **Design, Modelling & Production of Train Interiors, Parts & Cabling Solutions:**

Rail Seating – Inter-City & Commuter Trains

Sleeper Berths

Cushioning Materials

Toilet Modules

Luggage Racks & Sliding Doors

Switchgears & Panels

Thermal & Acoustic Insulation

Railway Parts

Cable Protection & Management Products

Rolling Stock Cables

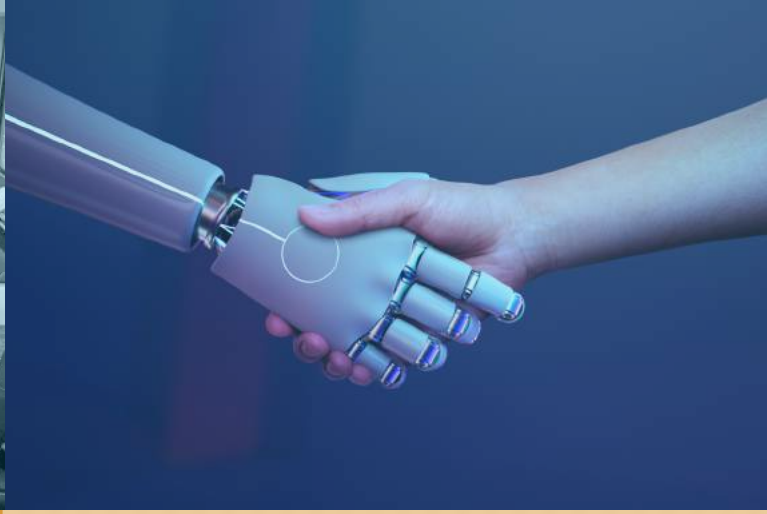


Lab & R&D Centre

The Company possesses 200,000 Sq. ft. Production facility certified to IRIS/ISO Quality Management systems. Our broad network of Service Engineers ensure excellent after-sales serviceability, availability of components/spares.

Centre of Excellence





Vision

“Innovative Technologies for Transportation Sector to enable Safer, Comfortable, Enjoyable & yet Cost Effective Journeys.”

Well supported by its mission that includes:

- Enable, Empower and Engage our people by continuously enhancing their competencies and imbibing the culture of Entrepreneurship
- Invest significantly in Research, Analytics, and Innovation to building Safer, Valuable & Cost-Effective solutions for our customer
- Establish a process of building Deep Relationships with Customers and make them partners while designing solutions
- Create a 'Centre of Excellence' & build and manage 'Intellectual Property'.
- Building an efficient organization by establishing processes and continuous improvement
- Ensure sustainability by building formidable internal capability while continuing to leverage the expertise of partners/collaborators

Mission



Seats



Sleeper Berths



Toilet Modular



Cable Protection & Management Solutions



Rolling Stock Cables



Light Weight Structures & Interiors



Railway Parts



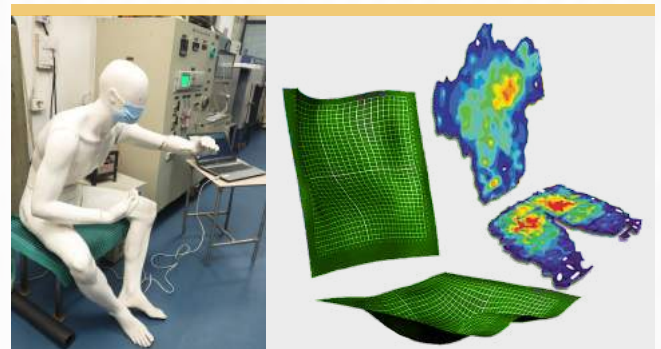
TRANSPORTATION SEATING SOLUTIONS

Train Seats

Design Capabilities

- Stainless Steel Seats
- Light Weight Aluminium Alloy Seats

- Fire Standards Conforming to EN45545/ HL3(R21), NCD1409, UIC564, BS6853, NFPA etc with complete Test Facility available in-house
- Choice of Silicone Foam & PU Cushioning Materials
- In-House Test Facility ensures compliance to International Railway Safety & Crash worthiness Standards including UIC 566
- Best Cost Economics because of end to end Inhouse production including: Metal Fabrication, Production of Cushioning Materials & their Compounds, Upholstery, Powder Coating, Injection Moulding & many more
- Over a Decade of Experience in Seat Manufacturing ensures Reliability, best design to support serviceability & After sales maintenance
- In-House Clinical Pressure Mapping Facility (with 1024 Sensors) ensures best in class Passenger comfort & Ergonomics even for Long Duration Journeys



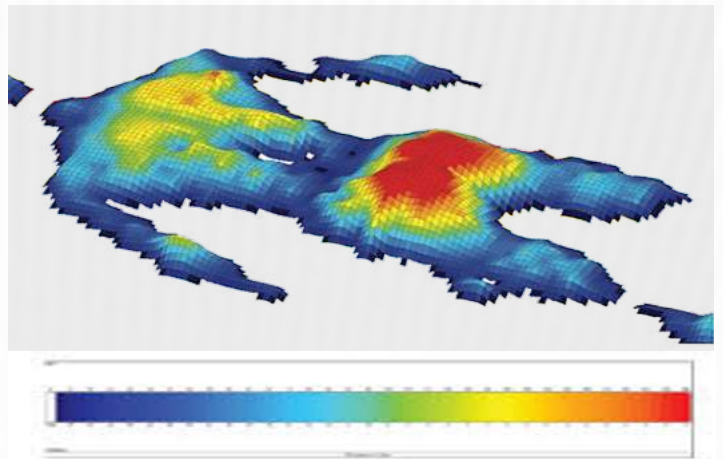
Sleeper Berths

Design Capabilities

- Stainless Steel Structure berths
- Light Weight Aluminium Alloy berths
- Carbon Fibre berths

- o Enables Substantial Weight reduction of Trains contributing to Huge Saving of Fuel/electric Bills
- o Fire Standards Conforming to EN45545-HL3(R21), NCD1409, UIC564, BS6853, NFPA etc with complete Test Facilities available in-house
- o Choice of Silicone Foam & PU Cushioning Materials
- o In-House Test Facility ensures compliance to International Railway Safety & Crashworthiness Standards including UIC 566
- o Best Cost Economics because of end to end Inhouse production including: Metal Fabrication, Production of Cushioning Materials & their Compounds, Upholstery, Powder Coating, Injection Moulding & many more

- o Over a decade of experience in Manufacturing of Sleeper berths ensures Reliability, best design to support serviceability & After sales maintenance



Full body pressure image

- o In-House Clinical Pressure Mapping Facility (with 1024 Sensors) ensures best in class Passenger comfort & Ergonomics even for Long Duration Journeys



Cushioning Materials

Cellular Silicone Foam



- Inherently Fire Proof
- Zero Smoke Toxicity
- Zero Smoke Visibility Loss
- Wide Temperature Resistance (-50°C to +205°C)
- Low Heat Release
- Does not Melt
- Halogen Free
- Free from Compression Set
- Uniform Load distribution
- Highly Comfortable & Durable
- Highly Inert to Water
- UV Resistance
- No Odour
- Resistant to Solvents, Minerals & Oils

Compression Set : IS:7888 70 deg C, 22 Hrs: Thickness Loss 10%

Durability : 50% Compression, 20,000 Cycles Pass

Fire Resistance : UIC 564-2 Class A, ISO 2440 Pass

Smoke Toxicity : NCD 1409: <1, BSS 4239: Pass, EN45545 HL3/R21

Smoke Density : UIC564-2 Class A, ASTM E 662: Pass, EN45545 HL3/R21

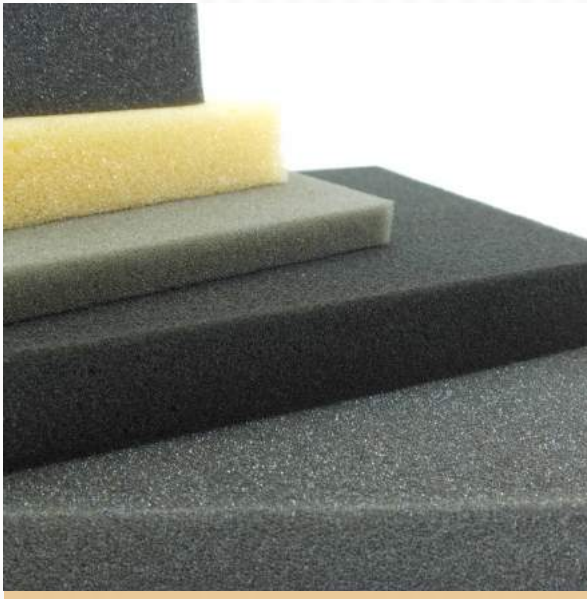
Heat Release Rate : En45545 HL3/R21



Cushioning Materials



PUR (Polyurethane) Foam



- Inherently Fire Proof
- Zero Smoke Toxicity
- Zero Smoke Visibility Loss
- Low Heat Release
- Does not Melt
- Halogen Free
- Uniform Load distribution
- Highly Comfortable & Durable
- UV Resistance
- Resistant to Solvents, Minerals & Oils



Compression Set : IS:7888 70 deg C, 22 Hrs:
Thickness Loss < 10%

Durability : 50% Compression, 20,000
Cycles Pass

Smoke Toxicity : En45545 HL3/R21

Smoke Density : En45545 HL3/R21

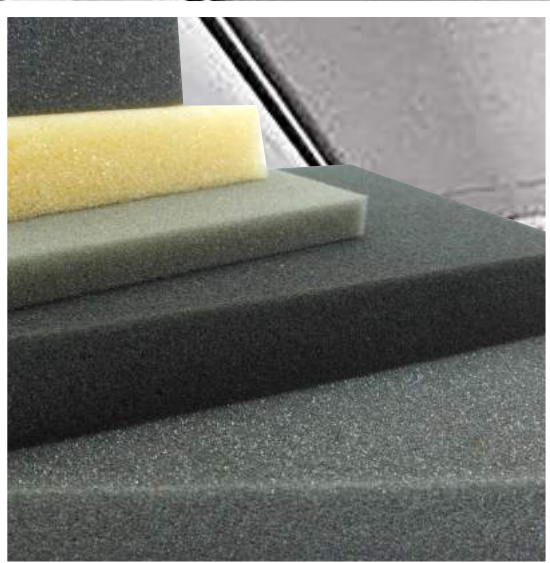
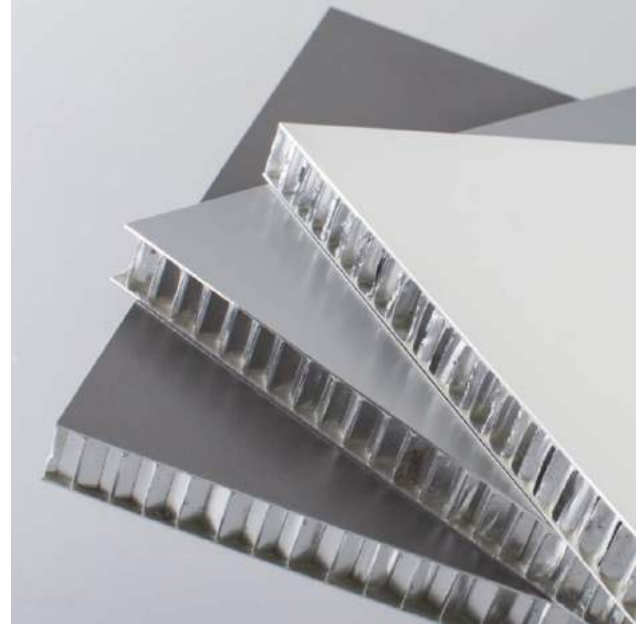
Heat Release Rate : En45545 HL3/R21

Upholstery Fabrics

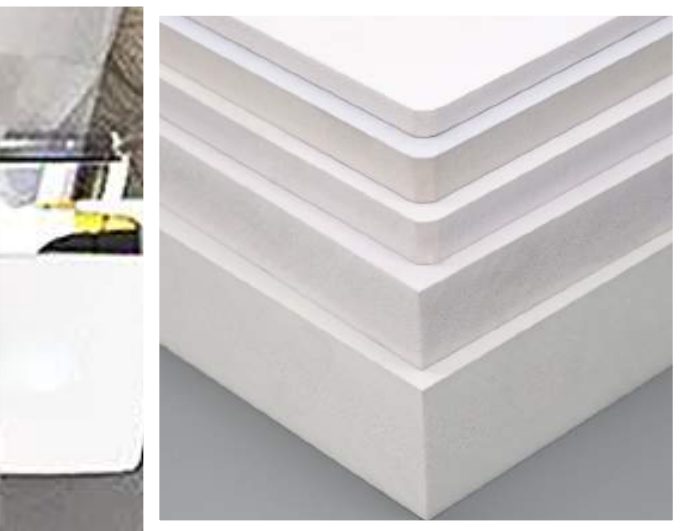
MV Mobility offers a diverse range of polyester cut pile, wool / nylon cut pile, artificial leather, fabrics data engineered to meet the requirements of mass transportations i.e. durability, scratch resistance, abrasion resistance and comfort. The entire range needs the fire safety standards of EN45545/HL3, UIC and various other international fire standards.

A very light range of designs, colours and patterns can be offered using our computerized designing software and simulation software to meet the interior design aesthetics of vehicles.





**LIGHT WEIGHT
STRUCTURES &
INTERIORS**



FRP Composite structures

MV Mobility offers light weight crash worthy composite structures in glass fibre and carbon fibre systems using our inhouse developed polymers / chemistry best suited to meet the requirements of strength, light weight and fire regulations including EN45545 / HL3, UIC and various other international standards.

We have deployed varied techniques to suit the specific requirements of transportation sector including:

- Hand layup
- Resin transfer moulding
- Vacuum moulding

Dedicated simulation softwares are deployed to visualise the interiors / colour combination /concepts to our customers. We ensure fast pro-typing to enable our customers finalized their designs and thereby facilitate mass production of these structures.



Aluminium structures

Having reach experience in different grades and metallurgies of aluminium, being used in transportation sector, MV Mobility can offer Light Weight aluminium Structures to suit the applications.

Different techniques engineering press forming, CNC bending, vacuum forming, die moulding, manual / robotic welding etc. are deployed to offered aluminium structural solutions specific to the requirement of transportation sector.



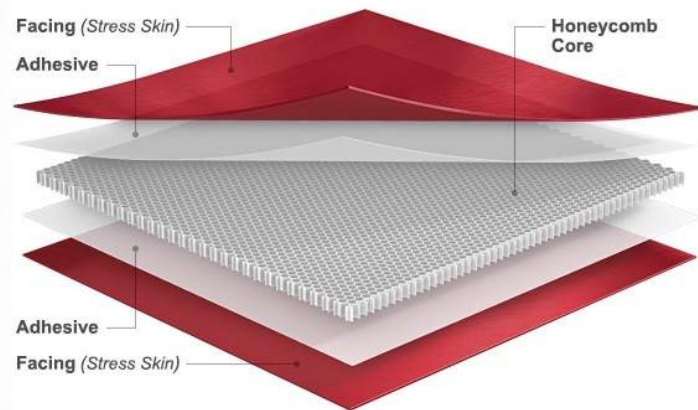
Aluminium Core Honeycomb Panels



MV Mobility manufactures high quality Aluminium Honeycomb core panels that are used in a wide variety of applications. Aluminium honeycomb is a preferred material because of its high strength-to-weight ratio and used in applications wherever low weight and crashworthiness are key factors. Our Honeycomb panels are being supplied for Rail Transportation for use as partition panels inside passenger coaches. Top Surface decorative panels can be supplied in numerous designs, colours & patterns to suit the theme of coach interiors

Key Features

- Light-weight: 1/3rd the weight of steel
- High Compressive Strength & Shear Modulus
- Corrosion resistant
- 100% recyclable, without any loss of its natural qualities
- It is easy to shape, form and fabricate
- Aluminium does not burn – it melts at 650 degrees centigrade
- Good Sound & Thermal Insulation
- Easy Installation



Luggage Racks

- Light Weight Aluminium Alloy Luggage Racks
- Integrated with wide choices of Lighting including Reading Lights & Continuous Cabin Lighting
- Specially designed to minimize the Rattling noise of Luggages due to Rolling Stock Vibrations
- Crash-Worthy Features for High Speed Trains

Roller Blinds

- Quiet operation
- Pull Down, Stepless Open/Close Operation
- Full height adjustability
- Zero Rattling Noise
- Ease-of-service with low life-cycle costs
- Sunscreen Fabrics with choice of Openness 1% to 14%

- Blocks UV rays effectively thereby preventing premature discoloration of goods
- Certified fabrics according to specifications
- EN45545/HL3, FMVSS 302



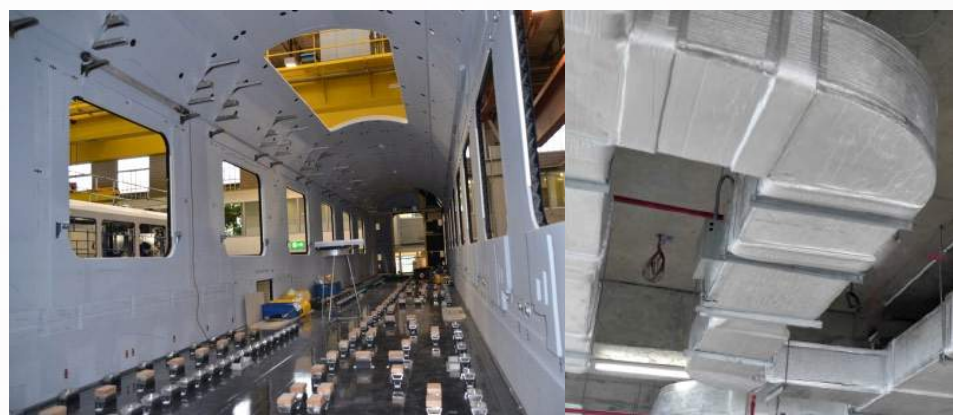
Insulation of Side Walls, Underframe & A/C Ducts

- Low Density 15kg/m³ Closed Cell Polyolefin

Thermal Insulation

- Excellent Thermal Insulation
- High/Low Temperature Resistance
- Highly Inert to Water
- High Strength/Mechanical Properties
- Conforms to EN45545 HI3

Thermal insulation

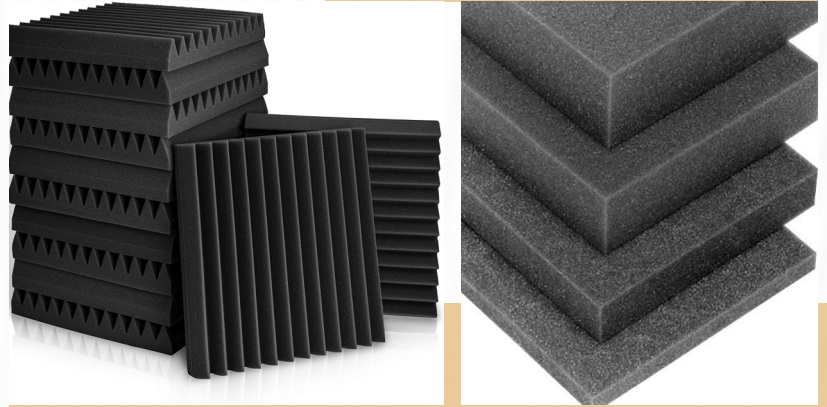


Acoustic insulation



- Low Density 12 Kg/m³ Open Cell Melamine Foam

- Excellent Sound & Thermal Absorption
- Highly Flexible
- Conforms to EN45545 HI3
- In House CNC Facility for Foam Fabrication & Contouring to supply in desired Shapes & Sizes
- Can be supplied with One/Two Sided Lamination with Aluminium Foil



Airconditioned Ducts

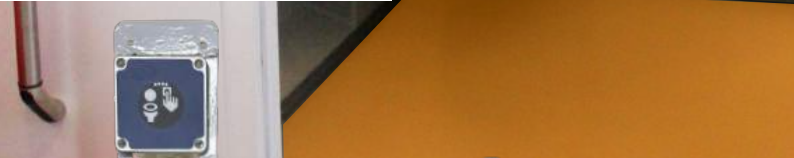


MV Mobility possess in-house design, Fabrication/ manufacturing facility for:

- GI Insulated Ducts Laminated with Light Weight, Open Cell Material that offers Thermal insulation along with excellent noise absorption.
- Aluminium A/C Ducts in Rectangular & Circular Sections
- Light weight fabric ducts conforming to EN45545/HL3



TOILET MODULES



Toilet Modules



- Light Weight Crash Worthy Composite Cabins
- Can be Supplied in Fully Assembled form for Drop Down installation in the coach OR in the form of SKD Kits
- Can be supplied with bio vacuum evacuation system
- Concept Development, 3D Modelling & Fast Proto-Typing
- Option of Bio-Digester Tanks for Underframe Fitment
- Wide Choice of Fittings including Lighting, Mirrors, Hand Rails, Water & Soap Dispensers, Wash Basins, Exhaust Blowers available in Metal & Light Weight Materials
- Fire Standards Conforming to EN45545/HL3(R21), with complete Test Facility available in-house



Bio-digester Tank



A Bio-Digester system is a complete waste management solution which reduces solid human waste to Bio-gas and water, with the help of a bacterial Inoculum. Biological decomposition of Human waste is done in bio-digester tanks with the help of anaerobic bacteria. Bio-Toilet is an innovative technology for disposal of solid human waste in an eco-friendly, economical and hygienic manner. The residual water from Bio-Toilet is Colorless, odorless and devoid of any solid particles. It Requires no further treatment / waste management & can be used for irrigation purposes.

Key Features

- Environment friendly
- Preventing damages to tracks due to corrosion
- Improved aesthetics at Railway Stations
- Simple in design & Require less maintenance
- Easier Retro fitment on existing coaches in service
- Can be in operation upto years together
- No oxygen and sunlight required for processing



Bio Vacuum Evacuation Systems

MV Mobility possesses a state-of-the-art Assembly/Integration & Testing facility for Bio Vacuum Toilet Evacuation Systems especially designed & developed for High speed Trains & Transportation. The Systems can be supplied independently or integrated with our Light-Weight Composite Toilet Modules.

Working Principle: Vacuum intermediate type Evacuation system comprises of an intermediate tank between toilet module and bio digester tank. In a standby mode, there is no vacuum in the bio digester tank and intermediate tank. During flush actuation, Vacuum generator will temporarily generate vacuum in intermediate tank, then the inlet pinch valve between toilet module and intermediate tank opens. The sewage in the toilet module will be sucked into intermediate tank by vacuum, and then the inlet pinch valve will close. The compressed air is then introduced into intermediate tank, the outlet pinch valve between intermediate tank and bio digester tank will open after the setting time, and then the sewage in the intermediate tank will be transferred to bio digester tank. This completes the flushing cycle.



Water consumption	:	0.6 Litre/Cycle
Air consumption per flushing cycle	:	≤ 5L (at 6 kg/cm ²)
Flushing cycle time	:	≤ 40S
Vacuum regeneration time	:	≤ 10 Sec
Air source pressure	:	4~10Bar
Working air pressure	:	4Bar
Input power	:	110VDC, 50W
Working power	:	24VDC, 50W
Water source pressure	:	≥ 0.1Bar
Working vacuum degree	:	-40Kpa~-50Kpa
Minimum working vacuum degree	:	-25Kpa
Pinch valve & pipe size	:	Dn40mm
Pan & bowl material	:	SS 316L
Pan & bowl surface finish	:	Polished reflective surface finish



RAILWAY PARTS & COMPONENTS



E.Beam Irradiated Cables



MV Mobility offers the complete range of Electron Beam Irradiated cables. These Speciality cables are developed for applications where Fire & Safety, Light Weight & Long-Term performance are of utmost importance

- Single/Multi Core Control & Power Cables for Railway Coaches, Locomotives & EMU's
- Shielded/Screened Cables
- Electric Vehicle Cables
- Solar Cables
- Silicone rubber Cables



The Company offers complete Wiring Harness solutions using its specialized cables, Protection Systems & interconnect products. We can support our customers in design & Component Selection during the Product development phase and offer quick Proto-Typing.

Silicone Rubber Flexible Gangways

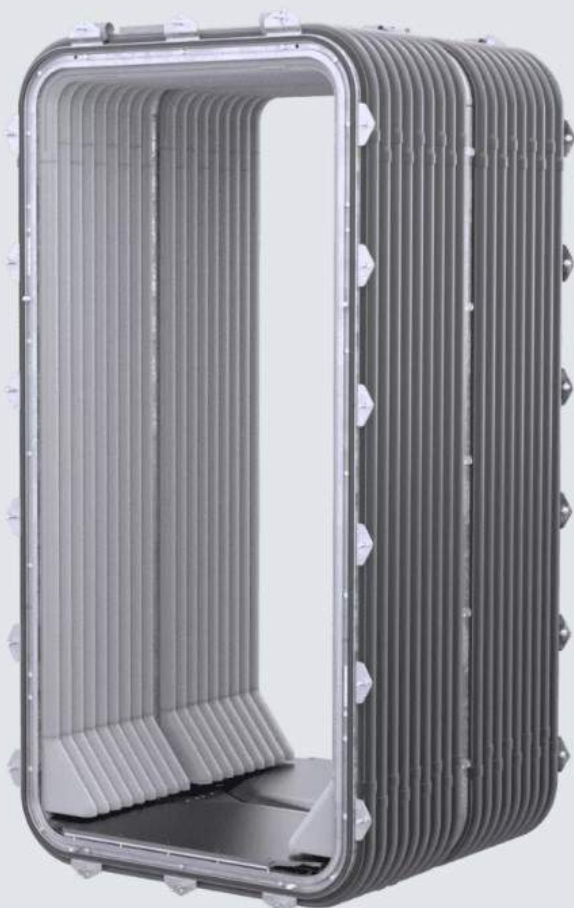
The silicone rubber Inter-coach gangways are designed for Trains with speed up to 200kmph.

The specially compounded material offers a blend of excellent fire properties and outstanding strength.

The flexible gangway is installed between two adjacent carriages to provide a safe and comfortable pass for passengers.

Key Features

- Single layer of Fabric
- Highly inert to Water
- Excellent ingress protection tightness
- Fast coupling and Decoupling
- Meets Rail Fire standard EN45545/HL3



Cable Protection & Management Solutions



- Flexible Corrugated Non Metallic Conduits
- Straight & Angular Metal Thread End Fittings
- Straight & Angular Plastic Thread End Fittings
- Stainless Steel Over braided Conduits
- Stainless Steel Flexible Corrugated Conduits
- Metal & Plastic Lock Nuts
- Tube Clamps
- Polyester & Nylon Expandable Sleeving
- Heat Shrinkable Cable Marking System
- Thermal Transfer Printers & Software
- Fire Resistance Conforming to EN45545/HL3

Connector & Cable Assemblies

- Electrical Inter-coach Connectors upto 500A Rating
- UIC Inter Coach Assemblies for Audio-Video Transmission
- Wheel Set Mounted Earthing Devices
- Metal Shell Rectangular Connectors



Passenger Information Systems and Displays



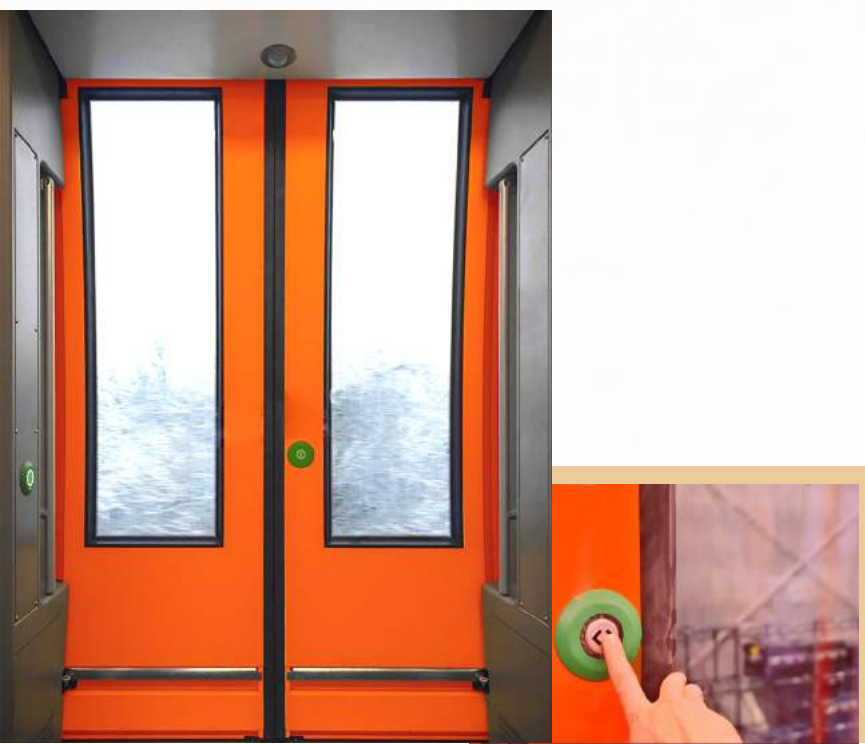
MV Mobility offers GPS Based passenger infotainment system that are installed in the Trains for information of upcoming stations to the passengers/ Announcements of Train Stopping. This helps the passengers to know the approximate distance of the approaching stations.

Key Features

- GPS Based satellite communication system to display the exact position of the Train
- LED/LCD based displays for passenger information inside & outside the train
- Automatic Brightness control according to ambient conditions
- Microprocesor-based Standalone unit, does not require inter-coach wiring on the Train
- Main Processing unit with 7" LCD Display can be integrated with CCTV installed inside the Train



- Mechanical Enclosure & fittings are coated as per coach design / colour patterns
- Audio speakers with amplifiers
- Emergency Push Button
- Compact & Light weight



Automatic Sliding Doors


- Light Weight Crash Worthy Doors
- Sliding Doors for Coach cabins
- Choice of Sensor Based, Push Button & Manually Operated Options


MV MOBILITY LIMITED


(Formerly known as Advanced Silicones Pvt. Ltd.)

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